Operating Instructions
Precision Collet Chuck HP plus

1. Product features

- low concentricity and repeatable accuracy (3µm checked at a distance 3x diameter or at a maximum of 50 mm from the face of chuck)
- radial clamping of entire tool shank leads to remarkable runout
- bridging of shanks with tolerance H10 without loss of accuracy
- clamping force several times higher as with conventional collet chucks or hydraulic chucks by our new wedge clamping mechanism, as well as quick and easy cutting tool change on the machine
- designed for HSC and conventional applications
- for drilling, milling, tapping and reaming
- taps can be clamped in standard collets

2. Executions

The HP plus chuck is deliverable in different executions:

Steep taper DIN69871, HSK, MAS/BT, CAT and on customers request.

3. General hints and cleanness for use of a HP plus chuck

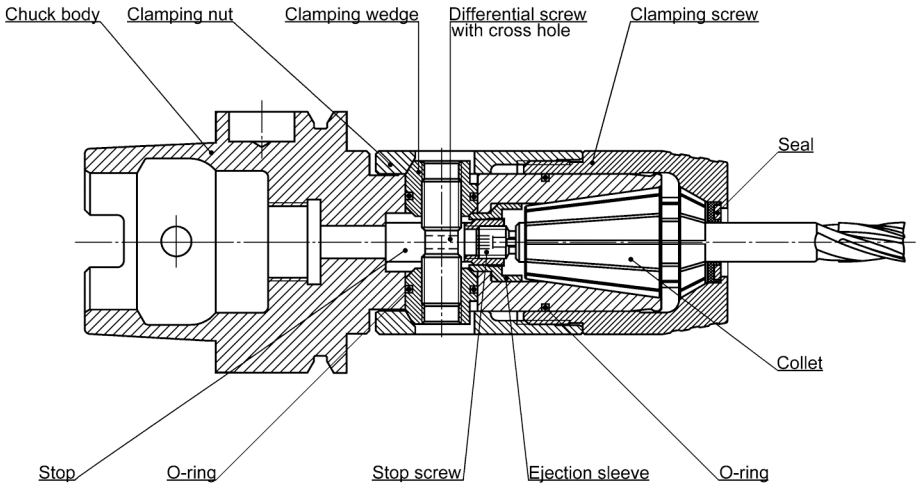
In order to guarantee faultless function of the chuck and the 3µm runout, original FAHRION collets type HP+ (produced to DIN 6499) must be used.

Collet Chuck, Collet, Clamping Sleeve at thread and all cylindrical and conic parts must always be clean and free of chips and dirt.

The chucks are generally intended for the acceptance of interchangeable seals. The HP+ collets are supplied with fitting seals. We recommend to use the seals always, as they protect possible entry of dirt and chips into the chuck.

The clamping sleeve and the seals must be checked before inserting and be cleaned, if necessary.

4. Design

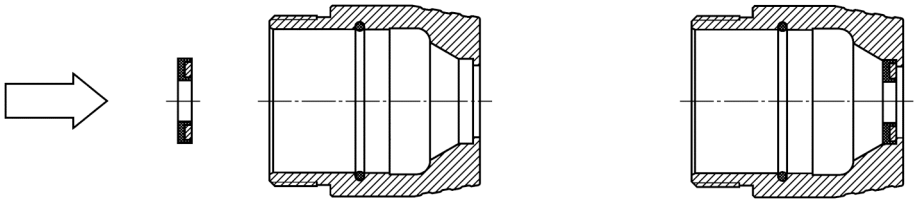


5. Tool check

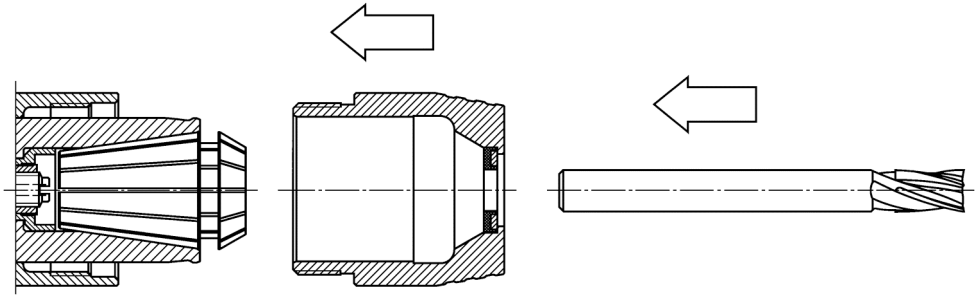
Check the runout of the tool shank to the cutting edge to ensure that the cutting tool is acceptable. This can be done for example on a template or in a prism.

6. Clamping of the tool

- Screw in the differential screw with the Hexagon Tee key (only possible on one side) till it stops. Then turn slightly back, because if you open to much the chuck starts to clamp the tool!
- Put the seals into the clamping sleeve. The vulcanised side must be in the direction of the collet!
- Insert the collet into the chuck.



- Screw on the clamping sleeve into the clamping nut till it backstops. Then insert the tool through the seal and collet till it backstops.



7. Tool length pre-setting

The tool pre-setting is possible from the front by a screw driver.

	adjustable length of the stop screw
HP16	3 mm
HP25	5 mm
HP32	5 mm
HP40	5 mm

8. Clamping of the tool

Please use a Hexagon Tee key for clamping and do not use a prolongation! We even recommend to use a torque setting wrench not to overclamp the chuck. Now clamp the differential screw with the Hexagon Tee key or the torque setting wrench clockwise tight. The tools are clamped with a multiple of your hand power.

Torque schedule for clamping a HP chuck		
type	**max. clamping torque**	**internal hex of the differential screw**
HP16	6 Nm 4,5 ft lb	Hex 3 mm
HP25	18 Nm 13 ft lb	Hex 4 mm
HP32	25 Nm 18 ft lb	Hex 5 mm
HP40	45 Nm 33 ft lb	Hex 6 mm

9. Changing of the collet

Take the Hexagon Tee key and turn the differential screw anti-clockwise till the clamping wedge (2 threaded pieces) is stopped by the backstop. Then turn slightly back, because if you open to much the chuck starts to clamp the tool!

Take out the tool, screw-out the clamping sleeve and then take out the collet and clean the cone.

For cleaning of the internal cone of the chuck screw out the clamping wedge so that the ejection sleeve will be draw back to the chuck, clean the cone and screw-in the differential screw again, before clamping a new diameter (very important).

Attention: Before clamping a new collet please take care for items 3 and 5 and use always an original FAHRION HP+ collet.

10. Changing of the tool

After using the chuck there are normally chips and dirt at the seals. When changing the tools these parts can enter into the chuck. The runout can be influenced then!

We recommend to remove always the tool, the collet and the clamping sleeve from the chuck when replacing a tool and to clean everything.

11. Attendance

It is very important that the clamping wedges are running easy. The more difficult it is to move these parts the less is the clamping force. In this case it is necessary to grease the parts. To do this the clamping sleeve has to be removed and the clamping wedges have to be turned out.

Grease now the visible threads of the clamping wedges. We recommend Altemp Q NB50 from Klüber.

12. Safety

Be aware of the safety instructions of the machine or other tools used! Never work with open machine door, especially at high speed or use of HSK tapers can lead a break and/or a crash of the HSK tool clamping/acceptance and/or the cutting tool to serious injuries

13. How to solve possible faults?

fault	cause	elimination
runout not o.k.	the new chuck must be seated with the collet	before checking runout clamp 2 to 3x the tool and first then check
	dirt or chips are in chuck, clamping sleeve, clamping nut or at the tool shank	please clean every parts acc. to item 3 and 5 very intensively
	differential screw is clamped too strong (use of a prolongation?) and results in a deformation of the chuck	clamp the differential screw as suggested in item 8, but first check the runout of the internal cone of the chuck
	cutting tool itself has a bad runout, for example long drills	check tool acc. to item 5
	collet does not clamp on the whole length	tool shank to be inserted the whole length of the collet better till the stop
	an old and wearied collet is used	always use new original FAHRION HP+ collets
	bearing in the pre-setter resp. in the runout check machine is not o.k.	
runout is not o.k. after automatic tool change	bearing problem in the machine	
	internal cone of the machine is wearied out or there is dirt/chips	
	automatic tool changer is not aligning to the machine spindle	clamp chuck by hand to check
coolant is spouting through the clamping sleeve	wrong seal is inserted – shank-Ø is smaller than the Ø to be sealed	replace seal
	aggressive coolant	replace seal
	tool is inserted with the edge through the seal	replace seal
no coolant comes through the tool	coolant bores in the chuck resp. in the stop are resinified or the coolant supply of the machine is resinified	clean the coolant bores with a cleaning medium (not acidic, because of the rust)

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